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Technical Report 2

A BIBLIOGRAPHY FOR MANAGEMENT SUPPORT SYSTEMS

By: R. E. BAIN

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Technical Report 2

December 1971

A BIBLIOGRAPHY FOR
MANAGEMENT SUPPORT SYSTEMS

By· R. E. BAIN

Prepared for:

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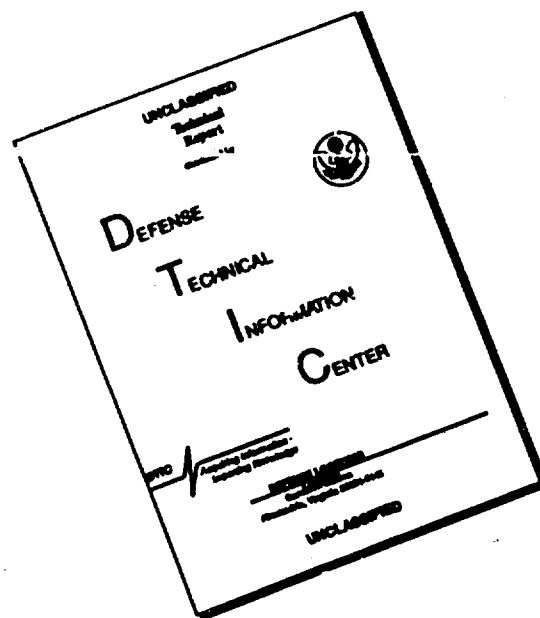*Information Science Laboratory*

BONNAR COX, *Executive Director*
Information Science and Engineering Division

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ACKNOWLEDGMENTS

I INTRODUCTION

The bibliography presented in this report is pertinent to the design and evolution of information systems for use by managers, i.e., management support systems (MSS).[*]

The report is intended as a list of published material that we have found useful in our own work or that has been suggested by colleagues. It is not intended to be a complete review of all relevant material, but it contains most of the principal sources of significant concepts in the subject areas of linked data structures and inferential information storage and retrieval. Notable omissions exist, especially of references related to operating systems, information display, and managerial models.

The material is divided into four sections: Subject Classes, Classified References, Author List, and Class Mnemonics. The first section gives the subject outline that has been used to classify references. This classification is one that we have found to be applicable to our own study. We cannot claim that it is completely general or totally free from ambiguity, but we feel that other workers in the field will find it useful. The list of categories given covers more subjects related to MSS than are represented by the references to allow for future expansion and to clarify the scope of the current set of references. A mnemonic code accompanies each class heading.

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[*] M. C. Pease and A. Waksman, "Large File Management Information Systems," prepared for the Office of Naval Research, Department of the Navy, Contract N00014-71-C-0210, Stanford Research Institute, Menlo Park, California (September 1971).

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The Classified References section lists the references under each related subject class heading by giving the first four letters of the author's last name. When required, a number suffix to the first four letters of the author's name is used to identify the specific cited book (or article listed in the Author List).

The Author List identifies each reference. It is arranged in alphabetical sequence by major author. The Subject Classes into which a given reference is placed accompanies the identification. This cross indexing is accomplished by citing the mnemonic codes that correspond to the pertinent Subject Classes.

Class Mnemonics lists each class code alphabetically, accompanied by the corresponding subject class to facilitate subject class identification.

II SUBJECT CLASSES

1. User-problem oriented concepts and methods [...u]

    1a. Management studies [mgmtu]

    1b. Behavioral studies [psycu]

    1c. Mathematical models [o.r.u]

    1d. Computer applications concepts [applu]

2. System design techniques

    2a. Information filing and retrieval [...r]

    2a1. General [i.s.r.]

    2a2. Inferential analysis and adaptation [infer]

    2b. Display and reporting [disp]

    2c. Data collection, validation, and communication [ioput]

    2d. Language [...l]

    2d1. Natural language processing [natrl]

    2d2. User-problem oriented [probl]

    2d3. Application specification and programming [appl]

    2d4. Data-base oriented [dbl]

    2d5. Software implementation [impl]

    2d6. System command and control [sysl]

    2d7. Formal semantics [forml]

le. Operating and programming support (ops)

lf. Communication networks (comms)

2a2. Inferential analysis and adaptation

ASH	FILL4	LEVI2
BELN	FILL5	MATT1
BUCH	GREE1	PARK
CHIE	HEWI	SCHW2
COLE1	JACK	SHAP
COLE3	JOHN	SLAG
DARL	JONE	SUPP
ERNS	KLIN	TOU1
FIKE2	KUHN1	WASS
FILL2	KUHN2	WOOD
FILL3	LEVI1	

2c. Data collection, validation, and communication

ATHE	ETS

2d. Language

2d1. Natural language processing

COLE1	FILL3	KELL1
COLE2	FILL4	MONT
FILL2	FILL5	SCHW2

2d2. User-problem oriented

CRAI1	HEWI	OTTE
ENGE1	MINK	

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2d3. Application specification and programming

       FOST   SCHW1   SR1N

       GORM   SEEG   STAN1

       HART   SPIT   TOU2

       IVER1

2d4. Data-base oriented

       DIXO   FOX   STAN1

       ENGEI   KELL2   TOU2

       FOST   SRIN

2d5. Software implementation

       ALSB   IVERI   WIRT1

       EARL2   SIGP1   WULF

       GRAH

2d6. System command and control

       FISH

2d7. Formal semantics

       ASHC1   FILL4   IVER2

       CHOM   FILL5   KNUT1

       ERNS   FRAS   SCHW1

       FELD2   NOPC   STAN1

       FILL2   IVER1   WIRT3

       FILL3

8

2d8. Compilation

BOBR2	JORR	STAN2
COLL	KJEL	STAN3
EARL1	LEAV	THOM
FELD2	QUIL2	WIRT3
FELD8	SIGP2	

2d9. Design

ALSB	JORR	STAN2
BELL	LEAV	STAN3
	QUIL2	THOM
FISH	SIGP2	WIRT1
FRAS	SPIT	WIRT3
HALP	STAN1	WULF

2e. Data structures

2e1. Types

BERT	FEIE	MCCA
CLIM	FILL1	NELS
CODD	FISH	REYN
COMP1	FRAS	SHAP
COMP2	KNUT2	STRH
COMP3	LEFK2	TOO2
DALE	LEVI1	WILD
DENN1	LEVI2	WONG

2e2. Formal semantics, models

ASHC1	FLEC	PRATT
ASHC2	FOST	QUIL1
BOBR1	FOX	REYN
BURS	FRAS	SCHW1
CODD	NOAR	STAN1
COLL	NOPC	TOU2
DIJK2	KNUT1	WIRT2
DIMP	MANN	WIRT3
EARL2	MATT2	WONG
FILL1		

2e4. Transform and adaptation

ALSB	JOHN	NELS
BERT	KJEL	ROTH
BOBR1	LEFK1	TOU2
BONN1	MATT1	WINS
HIRS	MATT2	WIRT2
JACK	MCCA	WOOD

2e5. Algorithms and techniques

BERT	ERNS	LEVI2
BUCH	ETS	LUM
CLIM	FEIE	MADN
COMP1	FOX	SALT

COMP2	GREE	SHAR
COMP3	HALP	SRIN
CORB2	HIGG	STRN
DALE	HIRS	TOU2
DENNI	KNUT2	WILD
DIMP	LEVI1	WONG

2f. Resource management and process scheduling

2f1. General

ASHC2	HOLT	MORG
DIJK2	MATT1	

2f2. Protection

SCHR

3. System development techniques

3a. Development tools

BUXT	ENGE2	WIRT1
CRAI2	NAUR	WULF

3b. Measurement and modeling

BONN1	DENN3	GREE
DENN1		MATT3
DENN2	GORM	ROTH

3c. Validation and program checkout

ASHC2	MANN

3d.   System evolution and configuration management

BONN2	GRAH	SEEG
BUXT	HART	SHAR
CONN	HOAR	TEIC
DIKJ1	NAUR	TOU1
DIJK2	RAND	WIRT2
FISH		

4.   Existing systems

4a.   Planning

HEWI	KAY

4b.   Data base management and information retrieval

ATHE	DALE	LEVI2
CODA	DIXO	MCDO
CORB1	FEIE	SRIN
CORB2	GOLD5	

4c.   Operating and programming support

CORB1

IV AUTHOR LIST

Abbreviations Used in this Section

ACM	Association for Computing Machinery
AFIPS	American Federation of Information Processing Societies
CACM	Communications of the Association for Computing Machinery
CIT	California Institute of Technology
CODASYL	Committees on Data Systems Languages
GB	Great Britain
IBM	International Business Machines Corporation
IEEE	The Institute of Electrical Electronics Engineers
IEEETC	The Institute of Electrical and Electronics Engineers Transactions on Computers
IJCAI	International Joint Conference on Artificial Intelligence
MIT	Massachusetts Institute of Technology
NATO	North Atlantic Treaty Organization
Proc.	Proceedings
RADC	United States Air Force, Rome Air Development Center
RCA	Radio Corporation of America

SIGBDP   Special Interest Group on Business Data Processing (ACM)

SIGPLAN   Special Interest Group on Programming Languages (ACM)

SRI   Stanford Research Institute

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ALSB   Alsberg, P. A., "Extensible Data Features in the Operating
System Language OSL/2," Proc. of the Third Symposium on
Operating Systems Principles, pp. 31-4, Stanford Univ., Calif.,
Oct. 18-20, 1971, ACM, New York (1971). (impl, dsgul, trnsa)

ASH   Ash, W. L., and Sibley, E. H., "TRAMP, An Interpretive Asso-
ciative Processor with Deductive Capabilities," Proc. of the
23rd National Conference of the ACM, pp. 143-56, Las Vegas,
Nev., Aug. 27-29, 1968, Brandon Systems Press, Princeton, N.J.
(1968). (infer)

ASHC1   Ashcroft, E. A., "Mathematical Logic Applied to the Semantics
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(1970). (forml, forma)

ASHC2   Ashcroft, E. A., and Manna, Z., "Formalization of Properties
of Parallel Programs," AIM-110, Stanford Univ., Calif. (Feb.
1970), AD-708 740. (forma, opso, certd)

ATHE   Atherton, P., Miller, K., Aurrichio, D., and Schwarzlander,
H., "Large Scale Information Processing Systems; Vol. II.
Investigations in Data Management," RADC-TR-70-80-Vol-2,
Syracuse Univ., N.Y. (May 1970), AD-708 726. (dbms, ioput)

BELL   Bell, J. R., "Design of a Minimal Expandable Computer Language,"
(Doctoral thesis), Stanford Univ., Calif. (Dec. 1968). (dsgul)

BELN   Belnap, N. D., "An Analysis of Questions: Preliminary Report,"
TM-1287/000/00, Systems Development Corp., Santa Monica, Calif.
(June 1963). (infer)

BERT   Bertztiss, A. T., Data Structures--Theory and Practice, Aca-
demic Press, New York (1971). (typa, trnsa, algra)

BOBR1   Bobrow, D. G., and Fraser, J. B., "An Augmented State Transition
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BONN2   Bonney, M. C., "Some Considerations of the Cost and Value of
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BOUL   Boulden, J. B., and Buffa, E. S., "Corporate Models: On-line,
          Real-time Systems, Harvard Bus. Rev., Vol. 48, pp. 65-83
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          and Semantics in First Order Logic, Machine Intelligence,
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          AD-673 382. (infer, trnsa)

BUXT   Buxton, N. N., and Randell, B., Software Engineering Tech-
          niques, NATO Science Committee Conference, Rome, Italy,
          Oct. 27-31, 1969, NATO Sci. Comm., Birmingham, England (1970).
          (toold, sysd)

CHIE   Chien, Y. T., "A Sequential Decision Model for Selecting Fea-
          ture Subsets in Pattern Recognition," IEEE, Vol. C-20, No. 3.
          pp. 282-90 (March 1971). (infer)

CHOM   Chomsky, N., Aspects of the Theory of Syntax, MIT Press,
          Cambridge, Mass. (1969). (forml)

CLIM   Climenson, W. D., "File Organization and Search Techniques,"
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          (typa algra)

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CODA   CODASYL Systems Comm., "A Survey of Generalized Data Base
        Management Systems," presented at the Proc. of the 24th
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        26-8, 1969, New York (1969). (dbms)

CODD   Codd, E. F., "A Relational Model of Data for Large Shared
        Data Banks." Commun. ACM, Vol. 13, No. 6. pp. 377-87 (June
        1970). (typam forma)

COLE1   Cole. L. S. "An On-Line Question-Answering System with
        Natural Language and Pictorial Input." Proc. of the 23rd
        National Conference of the ACM, pp. 157-67. Las Vegas, Nev.,
        Aug. 27-29. 1968. Brandon Systems Press, Princeton. N.J. (1968).
        (infer. natrl)

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DIXO   Dixon, P. J., and Sable., J., "DM-1: A Generalized Data Management System," Proc. of the American Federation of Information Processing Societies Spring Joint Computer Conference. Vol. 30, pp. 185-98, Atlantic City, N. J., Apr. 18-20, 1967, Thompson Book Co., Washington, D.C. (1967). (dbl, dbms)

EARL2 Early, J., "Toward an Understanding of Data Structures," Commun. ACM. Vol. 14, No. 10, pp. 617-27 (Oct. 1971). (impl, forma)

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and Sharing in MULTICS," Commun. ACM, Vol. 11, No. 5, pp.
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FRAS   Fraser, A. G., "On the Meaning of Names in Programming Systems," <u>Commun. ACM</u>, Vol. 14, No. 6, pp. 409-16 (June 1971). (forml, dsgul, typa, forma)

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HALP   Halpern, M., and Shaw, C. J. (Eds.), <u>Annual Review in Auto-</u><u>matic Programming</u>. Vol. 5, Pergamon Press, New York (1969). (dsgul, algra)

HART   Hartman, P. and Owens, D., "How to Write Software Specifica-tions," <u>Proc. of the American Federation for Information</u> <u>Processing Societies Fall Joint Computer Conference</u>, Vol. 31, pp. 779-90, Anaheim, Calif., Nov. 14-16, 1967, Thompson Book Co., Washington, D.C. (1967). (appl, sysd)

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STAN2   Standish, T. A., "Some Compiler-Compiler Techniques for Use in Extensible Languages," Proc. of the Extensible Languages Symposium. <u>SIGPLAN Notices</u>. Vol. 4, No. 8 (Aug. 1969).

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V CLASS MNEMONICS

algra   2e5.   Algorithms related to data structures

appl   2d3.   Application specification and programming language techniques

applu   1d.   Computer applications concepts

certd   3c.   System validation and program checkout techniques (including program proving)

comms   4f.   Communication networks

compl   2d8.   Language compilation techniques

dbl   2d4.   Data-base oriented language techniques

dbms   4b.   Data-base management systems

dsgnl   2d9.   Language design

disp   2b.   Display and reporting

edits   4d.   Data preparation and editing systems

forma   2e2.   Formal semantics and models of data structures

forml   2d7.   Languages, formal semantics (including syntax description)

impl   2d5.   Software implementation language techniques

infer   2a2.   Inferential analysis and adaptation--information filing and retrieval techniques (e.g., theorem proving, question-answer)

ioput   2c.   Data collection, validation, and communication techniques

i.s.r.   2a1.   Information filing and retrieval techniques--general

measd   3b.   Systems measurement and modeling techniques

mgmtu	1a.	Management studies
natrl	2d1.	Natural language processing techniques
ops	4e.	Operating and programming support systems
opso	2i1.	Resource management and process scheduling techniques-- general
o.r.u.	1c.	Mathematical models (user-problem-oriented concepts and methods)
plans	4a.	Systems for planning
prllo	2f2.	Parallel processing techniques
probl	2d2.	User-problem-oriented language techniques
projd	3e.	Project management techniques
proto	2f3.	Protection of hard and soft resources
psycu	1b.	Behavioral studies
shows	4c.	Reporting and display systems
sysd	3d.	System technical evolution and configuration management techniques
stora	2e3.	Storage media
sysl	2d6.	System command and control language techniques (e.g., job control languages, system generation languages)
toold	3a.	System development tools
trnsa	2e4.	Transorms of data structures and types and data structure adaptation
typa	2e1.	Data structure types
valid	3c.	System validation and program checkout techniques (including program proving)